

**CLAIMS**

**What is Claimed is:**

- 5           1. An implantable cardiac stimulation device comprising:  
            a sensor that monitors an indicator of patient activity and  
            that generates corresponding signals;  
            a pulse generator that generates stimulation pulses; and  
            circuitry connected to the sensor and the pulse generator,  
10           the circuitry being operative to process the signals from the sensor  
            and being responsive to a predetermined change in patient activity  
            level to implement an orthostatic compensation therapy, the  
            circuitry being operative to control the pulse generator based on  
            the orthostatic compensation therapy.
- 15           2. The implantable stimulation device of claim 1, wherein:  
            the orthostatic compensation therapy comprises abruptly  
            increasing the pacing rate, followed by slowly decreasing the pacing rate.
- 20           3. The implantable stimulation device of claim 2, wherein the  
            orthostatic compensation therapy comprises increasing the pacing rate to  
            approximately 80 - 100 beats per minute and then slowly decreasing the  
            rate over a time period.
- 25           4. The implantable stimulation device of claim 3, wherein the  
            sensor comprises at least one of an AC accelerometer, an oxygen  
            saturation sensor, an impedance sensor, and a sensor that detects a  
            change in at least one of an intracardiac electrogram and an evoked  
            response signal.

5           5. The implantable stimulation device of claim 1, wherein:  
            the circuitry is operative to determine the need for  
            orthostatic compensation therapy when the patient activity is below  
            a first threshold for a predetermined time period, followed by the  
            patient activity level exceeding a second threshold.

            6. The implantable stimulation device of claim 1, wherein the  
            sensor comprises an activity sensor.

10           7. The implantable stimulation device of claim 1, wherein the  
            circuitry is further configured to trigger pacing pulses, when the patient is  
            not in need of orthostatic compensation therapy, at a pacing rate as  
            determined from the sensor signals.

15           8. The implantable stimulation device of claim 1, wherein the  
            circuitry comprises a microprocessor.

            9. In an implantable cardiac stimulation device, a method of  
            determining a pacing rate, the method comprising:  
20           monitoring an indicator of patient activity and generating  
            corresponding signals;  
            processing the signals to determine a patient's activity level;  
            monitoring the patient's activity level for a predetermined change in  
            the activity level; and  
25           pacing at an orthostatic compensation pacing rate if the  
            predetermined change in the activity level is sensed.

            10. The method of claim 9, wherein:  
            monitoring the patient's activity level comprises determining a  
30           patient activity level and an activity variance measurement from the  
            activity signal.

11. The method of claim 10, wherein pacing at the orthostatic compensation pacing rate is performed if the activity variance measurement is below a first predetermined threshold for a predetermined time period, followed by the activity level signal exceeding  
5 a second predetermined threshold.

12. The method of claim 9, wherein the orthostatic pacing rate abruptly increases the pacing rate to between about 80 and about 100 beats per minute and then slowly decreases the pacing rate over a period  
10 of about 20 seconds to one minute.

13. The method of claim 9, wherein monitoring the patient's activity level comprises monitoring for a period of inactivity followed by an activity level that exceeds a predetermined threshold.  
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14. The method of claim 9, wherein monitoring the indicator of patient activity comprises using at least one of an AC accelerometer, an oxygen saturation sensor, an impedance sensor, and a sensor that detects a change in at least one of an intracardiac electrogram and an  
20 evoked response signal.

15. An implantable cardiac stimulation device comprising:  
means for monitoring an indicator of patient activity and for generating corresponding signals;  
25 means for generating stimulation pulses; and  
means for processing the signals to determine a predetermined change in patient activity level, and for implementing an orthostatic compensation therapy based on detecting the predetermined change, the means for processing  
30 comprising means for controlling the means for generating according to the orthostatic compensation therapy.

16. The implantable stimulation device of claim 15, wherein:  
the means for processing further comprises means for  
implementing an orthostatic compensation therapy that abruptly  
increasing the pacing rate, followed by slowly decreasing the pacing rate.

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17. The implantable stimulation device of claim 15, wherein the  
means for monitoring comprises at least one of an AC accelerometer, an  
oxygen saturation sensor, an impedance sensor, and a sensor that  
detects a change in at least one of an intracardiac electrogram and an  
evoked response signal.

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18. The implantable stimulation device of claim 15, wherein:  
the means for processing is operative to determine the need  
for orthostatic compensation therapy when the patient activity is  
below a first threshold for a predetermined time period, followed by  
the patient activity level exceeding a second threshold.

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19. The implantable stimulation device of claim 15, further  
comprising means for triggering pacing pulses, when the patient is not in  
need of orthostatic compensation therapy, at a pacing rate as determined  
from the sensor signals.

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